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AUTHOR Hammer, Jeffrey S.; And Others
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ABSTRACT

Social services, particularly health care and basic education, have been an important part of Malaysia's strategy for reducing poverty and economic disparities among ethnic groups. This chapter examines changes in the distributional impact of public outlays between 1974 and 1989, using household-level data on the use of public services, and discusses related improvements in health status and educational attainment. In both health and education sectors, the targeting performance of government expenditures improved over the period of the "new economic policy" (1970-90). Except for higher education, social service expenditures were progressive and became more so after 1974, as the poor captured the largest share of benefits from social expenditures. For education, primary-level enrollment is now virtually universal, and expansion of the educational system came as a result of an ethnically based targeting policy that reached lower and lower income groups. In contrast, improved targeting of health care came about as richer income groups opted out of the public system to use private practitioners. While provision of elementary and secondary schooling is pro-poor, higher education is regressively subsidized, and a false equilibrium is maintained through public monopoly on the granting of higher education degrees. As a result, the net distributional effect of overall education spending is flat with respect to income, and higher education enrollment rates are lower than those of other similar countries. Policy dilemmas and possible solutions are discussed. Includes 22 figures and data tables. (SV)

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18 Distributional Effects of Social Sector Expenditures in Malaysia, 1974–89

Jeffrey S. Hammer, Ijaz Nabi, and James A. Cercone

ocial services, particularly in health and education, have been an mportant part of Malaysia's strategy for reducing poverty and eco-omic disparities among ethnic groups. Investments in human capital re often highlighted as major contributors to the increased productiv-ty of this rapidly growing country. It is now an opportune time to valuate the contribution these services have made to the goal of pro-noting growth and equity for two reasons. First, the guiding policy ramework of the past two decades, the New Economic Policy, has ome to an end, offering a natural point for reevaluation. Second, as he government of Malaysia is currently reevaluating the relative roles f the government and the private sector in providing a wide range f infrastructure and social services, it is useful to document trends in he contribution made thus far by this set of public expenditures.

This chapter examines the impact of government spending and policy n the social sectors from the early 1970s through the late 1980s in Malaysia. It addresses the following questions. Who are the primary ecipients of social sector expenditures? Has the pattern of expenditure ncidence changed over time, and does that suggest the need to alter argeting practices? In addition to transferring income, social sector xpenditures should also affect the health status and educational attain-nent of the population. In the second part of the chapter, we present evidence showing the effectiveness of government expenditures on ealth and education indicators.

The chapter is organized as follows. The next section provides some istorical context for the subsequent analysis and describes the Malay-ian government's social sector policies during the period from 1973 o 1989. The following section discusses the data and methodology

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used in the study. Based on household survey data from 1974 to 1989, we then present findings on who receives social expenditures and how that has changed over time. These expenditures are examined as a share of total government expenditure and as a share of family income. Next, based on a panel of statewide aggregate data from 1986 to 1990, we review the relationship between public expenditures to the social sectors and overall improvements in health and education outcome measures. The conclusion collects the main findings and presents some final remarks on the policy implications of our analysis.

Background

At the time of Malaysian independence from the United Kingdom in 1957, the indigenous Malay population was disadvantaged economically with respect to the other two major ethnic groups, the Chinese and the Indians.[1] Even after independence in 1957, progress in implementing policies to restore equality among ethnic groups was extremely gradual, and rising tensions between the racial groups led to race riots in 1969. After the riots, the Malaysian government designed and implemented the New Economic Policy (NEP) to ameliorate poverty among the Malays and to reduce ethnic income disparities in the country. The policies of the NEP spanned two decades (1970–90) and maintained two basic goals: (a) the eradication of poverty by raising income levels and increasing opportunities for all Malaysians, irrespective of race, and (b) the rapid reordering of society to correct economic imbalance, so as to reduce the identification of race with economic function (Government of Malaysia 1970).

During this period, the Malaysian government channeled public resources to rural Malays through health and education services. Federal government allocations to health and education were high, averaging around 20 percent of central government expenditure, and appear to have been well designed: rural health programs were aggressively expanded, and more than 50 percent of public spending on education was directed to primary education programs. Measured in terms of indicators such as infant mortality and gross enrollment rates, these interventions also appear to have been remarkably successful. For example, immunization rates and safe water coverage expanded significantly, and the infant mortality rate declined from 39.4 per 1,000 in 1970 to 22.0 per 1,000 in 1990.

Improvements in education statistics during this time were also impressive. Between 1970 and 1985, primary enrollment rates increased from 87 to 99 percent, and the average years of schooling for all Malaysians increased from 3.2 to 5.7 years. These improvements appear to reflect both the government's heavy investment in primary education and the impact of redistributive policies to eliminate disparities

between ethnic groups. A 1988 study of educational policies in Malaysia (De Tray 1988) found that Chinese and Indian children between the ages of twelve and eighteen were less likely to attend secondary school in 1976–77 than Malay children, controlling for household and socioeconomic characteristics.

Despite the impressive progress made over the past twenty years, there are at least two reasons to suspect that the success of the early period of the NEP in targeting public expenditures would not have been sustained throughout the 1980s. First, due to the success of Malaysia's antipoverty efforts, it may have been more difficult to target expenditure to the very poor simply because they were harder to find. Second, to the extent that race has indeed become less identified with economic function, racially targeted policies may no longer have been an efficient means of targeting poverty groups. Although this was the original working hypothesis, it turned out not to be true.

Data and Methodological Issues

In order to evaluate the impact of government expenditures on household welfare, a comparison should ideally be made between the household's situation in the presence of public expenditures and the situation in the absence of any government expenditure. Models of incidence analysis separate the total incidence of public spending into three components: the burden of the tax used to finance the government program, the benefits accruing to the household from the use of the public services, and the redistribution of income resulting from the consumption of publicly subsidized services. According to Musgrave's theory of expenditure incidence, the analysis should simultaneously consider the determination of the entire tax and expenditure system, employing the government's aggregate subsidy on health and education as one of the parameters of the system. Unfortunately, the data available for Malaysia do not enable us to carry out an analysis according to these theoretical constructs; hence, this study considers the redistributive effect of government spending in a partial equilibrium framework.

We analyze the distribution of Malaysia's public spending in the social sectors by determining, based on household use rates, the share of government subsidies on health and education services received by quintiles of households ranked by their per capita household income.[2] The methodology used to calculate per unit subsidies, to rank households, and to distribute the subsidies across households is conceptually the same as that used in the study of Malaysia's social sectors in 1973–74 by Meerman (1979), permitting us to make comparisons over time. Thus, using the results reported in Meerman and data from the latest Malaysia Household Income Survey (Government of Malaysia 1984

1989), we are able to compare the effect of NEP policies over a fifteen-year period, 1974 to 1989.

Determining the incidence across households of government spending on health and education involves several steps. First, we calculate the cost to the government of providing various health and education services. To account for the varying amounts of government spending across the states, the unit cost to government of providing a service is calculated separately for each state on the basis of its operating and development budget allocations and the number of service units provided (number of outpatient visits to public health centers, number of children enrolled in primary school, and so forth). In addition, unit costs are calculated by level of service provision: primary, secondary, and higher education; and public inpatient and outpatient care.[3]

In order to include the annual user cost of capital, capital expenses are calculated by constructing a capital stock series from development budgets. Capital costs are then imputed using the weighted averages of lagged development expenditures, also by state, level of education, and type of health service.[4] The results derived from this calculation are robust under different assumptions concerning depreciation.

Next, we obtain an estimate of each household's use of publicly provided services. As before, household use rates are determined separately for the three levels of education and for inpatient versus outpatient visits to public health facilities. For education, service use is measured as the number of household members attending a public primary, secondary, or higher-level institution. Similarly in health, use is represented by the household's number of health care visits to a public health facility during the year, on an inpatient and outpatient basis.[5]

Arriving at the subsidy received by each household through its use of public facilities requires that the fees collected from users be subtracted from the unit cost to the government of providing the services.[6] Corrections for this are most important for education. Finally, subsidies are aggregated across households to get each expenditure quintile's share of per capita government subsidies.

The household-level data used here are from the 1984 and 1989 rounds of the Malaysia Household Income Survey (MHIS), an individual-level household survey collected by the Malaysian Department of Statistics. The MHIS is a representative sample containing detailed household information on more than 45,000 households. The survey includes information on household characteristics, various sources of income, expenditures on both public and private goods (including health and education), and use rates for public and private health and education services. As noted above, the results for 1974 are taken from Jacob Meerman's study on the distributional incidence of public expenditures in Malaysia (Meerman 1979). Meerman's data come from a specially designed survey of 1,400 households conducted

from 1973 to 1974. As with the MHIS data, the earlier survey collected a wide variety of household-level information on the expenditure and use of both public and private goods.

While the information contained in Meerman's data set is generally comparable to the MHIS data, a few differences and limitations should be illuminated. First, although data on health care use are available for 1989, due to data limitations, they could not be matched with data on household income for the same year. As a result, references to 1989 for health care refer either exclusively to use data or to data drawn from statewide averages. All distributional analysis for health therefore relies on the results from the 1984 survey. Second, the large sample size of the MHIS data set minimizes the sampling error that was inherent in Meerman's small sample of 1,400 households; furthermore, the MHIS data are representative of the entire country rather than the exclusively peninsular Malaysia data collected in Meerman's 1974 sample. We extend our analysis of social sector spending in Malaysia beyond Meerman's work by means of regression analysis that corrects for the relative effects of ethnicity and other household characteristics on the demand for health care and education. We examine a model based on statewide data to assess the impact of public expenditures on outcomes relevant to the sector. To do this, we construct a panel consisting of a time series of state-level data from 1986 to 1990 on (1) gross domestic product (GDP) per capita, (2) public expenditures on health and education, (3) infant and maternal mortality rates, (4) schooling transition rates, (5) immunization rates, (6) proportion of the population having access to safe water, (7) number of public and private doctors per capita, and (8) agriculture's share in state income. Our data sources include epidemiological surveillance data collected by the Ministry of Health, education data collected by the Ministry of Education, and statewide government spending data from the regional accounts system of the Ministry of Finance. The methodology used to analyze these data and a more detailed description of the variables included are contained in the section on outcomes and efficiency.

The Subsidy Incidence in Health

Due to the progress in raising living standards achieved by government programs in the 1960s and early 1970s, it was anticipated that the targeting performance of government programs in the social sectors would show a deterioration over the period of the NEP. Using the number of inpatient and outpatient visits per capita to public health facilities in 1984 as an indicator of the consumption of government-provided health services, we are able to calculate the distributional incidence of public spending on health in Malaysia. The analysis in this section is organized into four parts. Part one examines how the

use of public health facilities per income group in 1984 differs from Meerman's results for 1974. Part two uses a simple regression to examine how use varies by ethnic group, controlling for various household characteristics. Part three looks at the size of the government subsidies in relation to the annual income of the household and the impact of these subsidies on the distribution of income. And part four uses statewide data to verify whether government spending on public goods such as immunizations and safe water is allocated progressively.

Table 18-1 presents the share of outpatient and inpatient visits to public health facilities by income quintile in 1974 and 1984. When use figures are compared for the richest and the poorest quintiles, there appears to have been an improvement in the targeting performance of public expenditures on health care rather than the suspected deterioration. In 1974, 19 percent of total government expenditures on inpatient services was received by the poorest 20 percent of the population, and 20 percent was captured by the richest 20 percent. In 1984, these figures were 25 and 16 percent, respectively, indicating that from nearly equal use of facilities in 1974, the poor increased their use of public facilities relative to the rich. For outpatient visits, the figures were 22 and 16 percent, respectively, for the lowest and highest quintiles in 1974 and remained virtually unchanged at 24 and 15 percent in 1984. For the net overall health subsidy (inpatient and outpatient visits combined), the 1974 figures were 22 and 17 percent; in 1984, the poorest and richest 20 percent received, respectively, 25 and 16 percent of the subsidy.

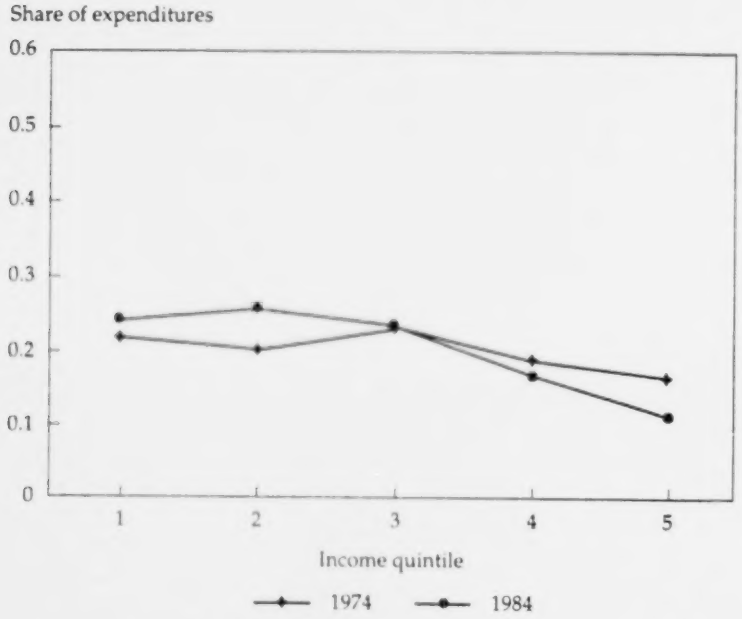
The decline in the use of public inpatient facilities by the wealthy relative to the poor is mirrored in the shares of visits to private facilities. The richest quintile accounted for 30 percent of private outpatient visits in 1974, and their share rose to 34 percent in 1984. More dramatically, this group accounted for 46 percent of inpatient stays in private facilities, up from 12 percent in 1974 (the second highest quintile accounted for 67 percent of private inpatient visits).

Table 18-1. Share of Total Inpatient Days and Outpatient Visits to Public Facilities, by Quintile of Household per Capita Income, Malaysia, 1974 and 1984
(percent)

	1974		1984	
Quintile	*Inpatient*	*Outpatient*	*Inpatient*	*Outpatient*
1	19	22	25	24
2	27	20	21	23
3	10	23	19	21
4	24	18	20	18
5	20	16	16	15

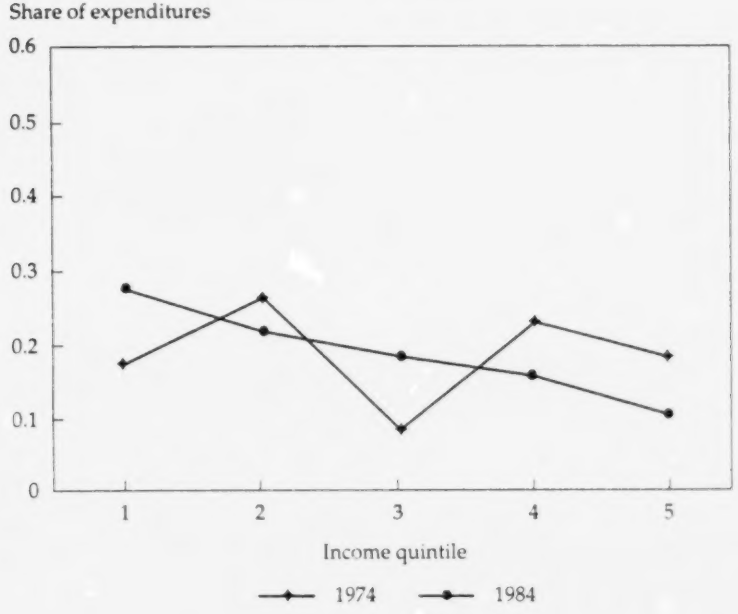
Sources: Meerman 1979; Government of Malaysia 1984.

Figure 18-1. Distribution of Outpatient Expenditures as a Share of Government Subsidy, Malaysia, 1974 and 1984



Figures 18-1 to 18-3, respectively, show the proportion of expenditure for outpatient care, inpatient care, and total health care that accrued to each quintile of the income distribution as a share of public expenditure for that category of service in 1974 and 1984. Since the functions in figure 18-3 cross each other three times, it is hard to say that one pattern is unambiguously more equitable than the other.[7] However, since the shares decreased for the richest two quintiles and increased for the poorest, a wide variety of inequality measures would conclude that government expenditures on health were better targeted in 1984 than in 1974. This is due to the much slower increase in the use of public facilities among the rich than among the poor (per capita visits increased for all groups in this period) and the disproportionate increases in the use of the private sector by the rich relative to the poor. The data set does not allow the estimation of the demand for health care. However, the demand for quality of care, defined to include amenities and savings in time, is likely to be quite income elastic. The rapid growth of income over the period would increase demand for private sector care more than for public sector care with no change in quality in either sector.

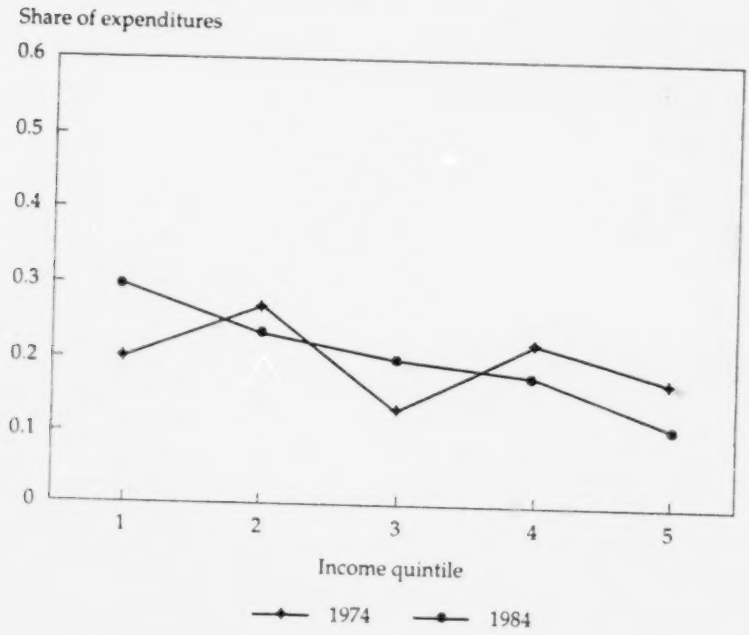
Figure 18-2. Distribution of Inpatient Expenditures as a Share of Government Subsidy, Malaysia, 1974 and 1984



Are poorer people in each area or in each ethnic group using public health facilities more, thereby reflecting redistribution by income, or does the use pattern appear redistributive, because generally poorer regions or groups are favored? Regression analysis of the 1984 data allows us to evaluate the targeting performance of public expenditures in terms of income, holding region, race, and urban/rural location constant (see appendix 18-1 for regression results). Controlling for these other determinants reveals how use varies with income, *ceteris paribus*. Figure 18-4 shows relatively high use of public inpatient services by lower-income and upper middle–income groups. The regression results, which control for race, region, state, and income level, do reinforce the conclusion that the use of private health facilities generally increases with household per capita income.

We also analyze the use patterns of inpatient and outpatient facilities by ethnic group. Table 18-2 presents the use of facilities by race for 1974, 1984, and 1989. It shows that average health care use by Chinese has steadily declined over the period of the NEP from a high of 5.1 outpatient visits per year in 1974 to only 2.0 in 1989; overall, health

Figure 18-3. Distribution of All Health Expenditures as a Share of Government Subsidy, Malaysia, 1974 and 1984



care use in both public inpatient and outpatient facilities is lower than for the other ethnic groups. The regression results presented in appendix 18-1 provide additional evidence of differences among the races in the use of health facilities. Our regression of medical care use on income, region, state, and race clearly indicates that, controlling for socioeconomic characteristics, the Chinese are less likely to consume public health care services than either Malays or Indians.

The results confirm an interesting result that also appeared in Meerman (1979): modern medical facilities seem to be disproportionately used by Indians, irrespective of region, state, or income. A possible explanation is that Indians have a revealed preference for the consumption of health care. One result that has changed from the earlier study is the statewide pattern of use. In 1974, people in Selangor used facilities at much lower rates than people in other regions. For 1984 and 1989, however, there were no such dramatic differences. When the states are ordered in terms of mean per capita income, no pattern of use is found, though there is a slight indication of lower use by the poor states in peninsular Malaysia.

Figure 18-4. Use of Inpatient Medical Care, Malaysia, 1984

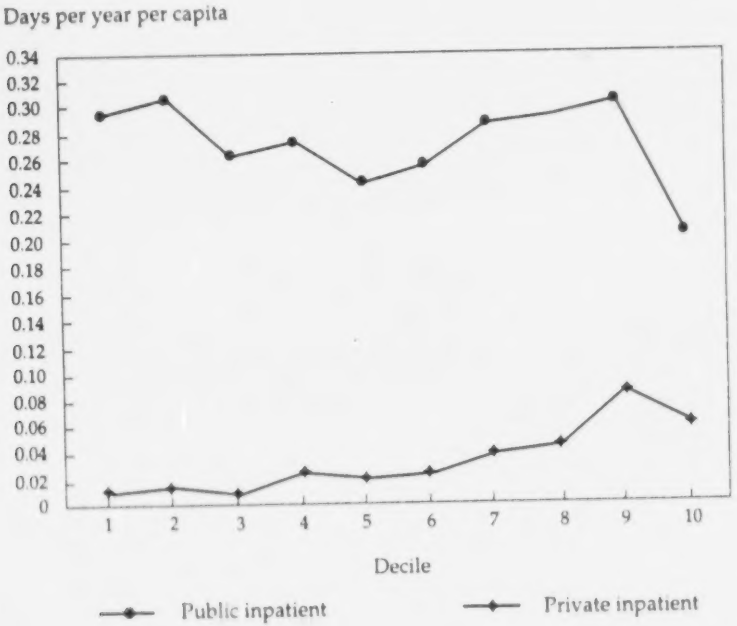


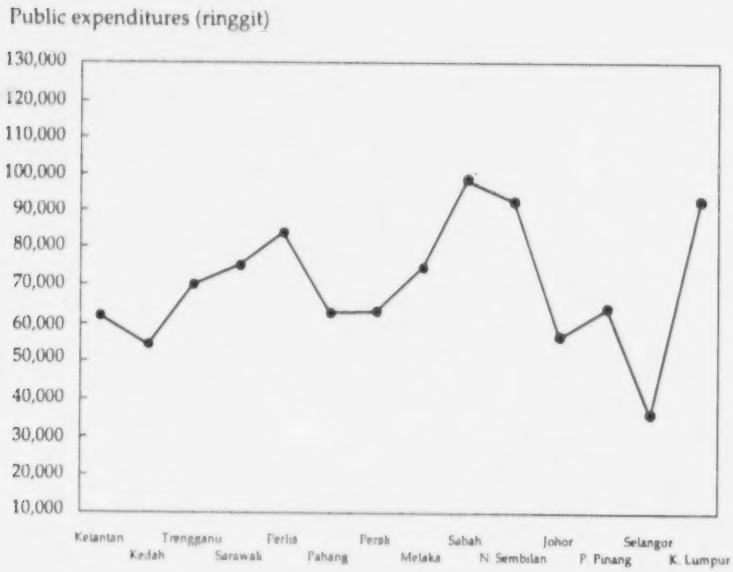
Table 18-2. Number of Inpatient Days and Outpatient Visits to Public Facilities per Household per Year, by Race, Malaysia, 1974, 1984, 1989

	1974		1984		1989	
Group	*Inpatient*	*Outpatient*	*Inpatient*	*Outpatient*	*Inpatient*	*Outpatient*
Chinese	1.90	5.12	0.78	3.08	0.41	2.00
Indian	7.21	5.92	2.92	7.23	1.48	6.74
Malay	2.08	4.24	1.38	6.06	1.05	6.80

Sources: Meerman 1979; Government of Malaysia 1984, 1989.

Figure 18-5 shows the per capita allocation of health expenditures by state, in an ascending order of average per capita income.[8] The ambiguous slope of the line indicates that there is no clear relation between the average income of the state and the size of the health budget. If Kuala Lumpur is ignored, there is a slight tendency to use budgets as a redistributive device (allocating fewer dollars to the wealthiest states), but this might simply reflect a more obvious bias toward the states of East Malaysia. Except for the higher budgets in

Figure 18-5. Per Capita Health Expenditures, by State, Ranked from Poor to Rich, Malaysia, 1990



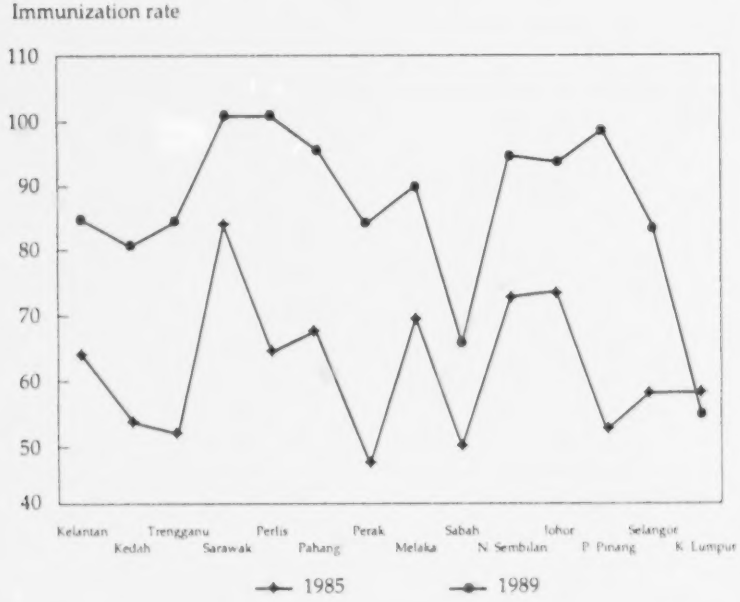
the capital and the East, it is not possible to explain the expenditure pattern. A simple regression confirms that neither income nor progress (or lack thereof) on health indicators is a determinant of budgeting decisions.

Additional information on the targeting of public health spending can be gleaned by examining the provision of public goods across the states ranked according to GDP per capita. Figure 18-6 shows the percentage of each state's population that has been immunized with a third shot of DPT (diphtheria, pertussis, and tetanus); figure 18-7 displays the percentage of the population in each state with access to public, safe water sources. In both figures, states are ranked by income per capita from poorest to richest.

Figure 18-6 illustrates the impressive progress made between 1985 and 1989 in DPT immunization coverage. The immunization rates do not correlate well with income, though private demand for immunizations probably does, thus reinforcing the impression that health expenditures were progressively allocated during the period of the NEP.

As shown in figure 18-7, the pattern for safe water is the reverse. Coverage of safe water is positively correlated with income, in that 90 percent of the people in the wealthiest states have access to safe water,

Figure 18-6. DPT Immunization Coverage, by State, Ranked from Poor to Rich, Malaysia, 1985 and 1989



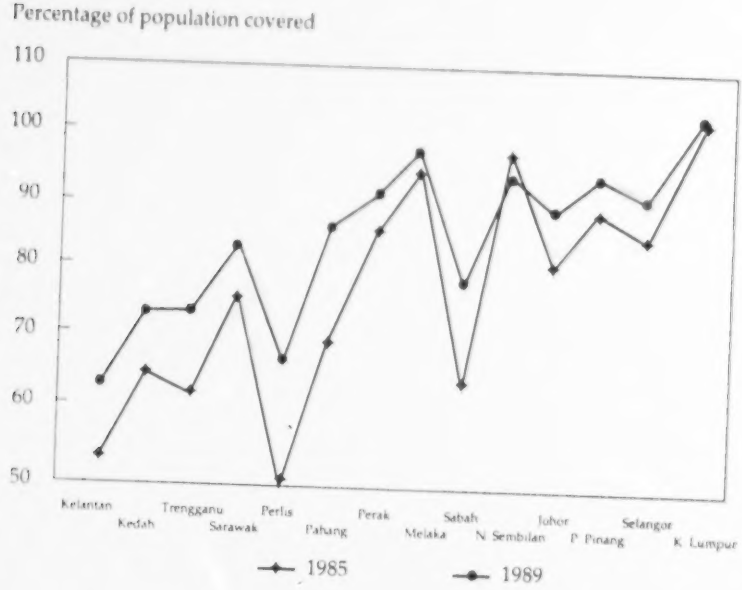
while less than 70 percent of the people in the poorest states have access. However, this should not be used to argue against the expansion of the service. While on *average*, the richer states currently receive more publicly provided safe water, the high rates of coverage imply that the *marginal* recipient from any expansion of the service would have to be from among the poor. The rich have already made sure that they receive the public services, thus there is little room for improved coverage in the rich states. The increase in coverage would therefore benefit either the poor currently without coverage in the wealthier states or the poor residing in the poorest states.

In summary, health expenditures during the period of the NEP were progressive in that disproportionately more was spent on the poor than on the rich, this relation becoming stronger over time. A primary explanation is that the increased use of private practitioners by the relatively well-off left government expenditures better targeted.

The Subsidy Incidence in Education

Malaysia continues to make great strides in the provision of basic educational services to its people. Aggressive policies to ensure univer-

Figure 18-9. Safe Water Coverage, by State, Ranked from Poor to Rich, Malaysia, 1985 and 1989

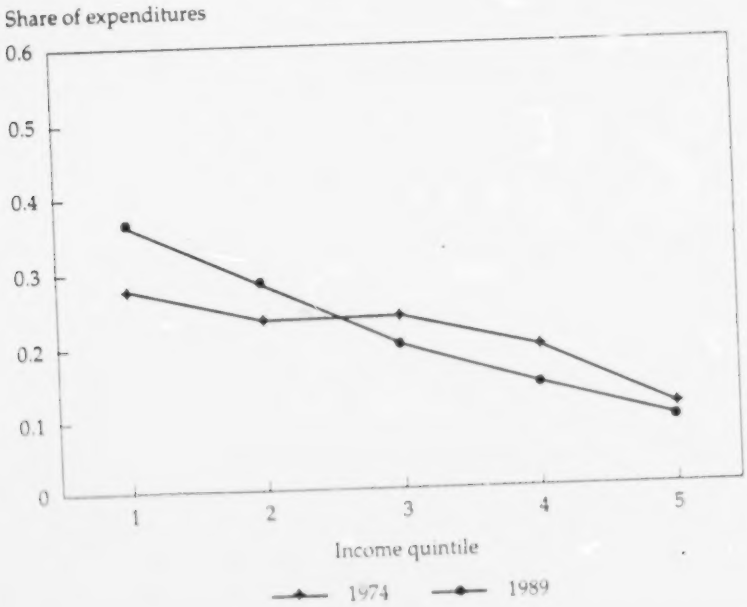


sal primary education and the expansion of secondary-level programs have benefited all Malaysians by increasing primary and secondary school participation rates and by raising educational attainment at all levels of the education system. In order to achieve this progress, Malaysia allocated more than 16 percent of government spending to education programs over the period of the NEP; based on the magnitude of this investment, it is important that this spending continue to fulfill the two principal objectives of the NEP, by not only reducing ethnic disparities but also raising the income and opportunities of all Malaysians, irrespective of race. Using the benefit-incidence methodology presented earlier, this section examines the impact of Malaysian education policies in terms of the distributional incidence of the benefits and then in terms of the government outlays to education by state.

Figures 18-8 to 18-10 show the proportion of expenditure at the different levels of education that went to each quintile of the income distribution in 1974 and 1989. As in the analysis for health, the 1974 data come from Meerman (1979); the 1989 data are from the Malaysia Household Income and Expenditure Survey.

These figures clearly illustrate that educational expenditures at all three levels became more equitably distributed over time. In 1974,

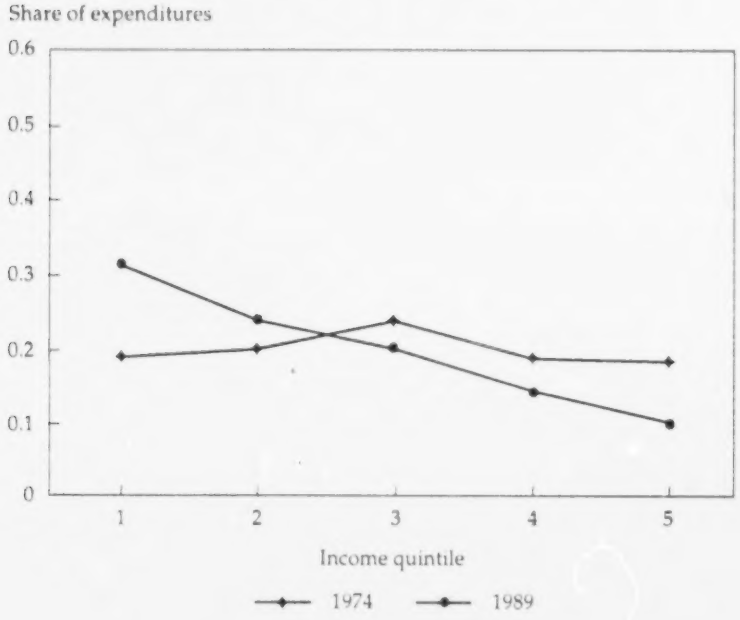
Figure 18-8. Distribution of Primary Education Benefits, Malaysia, 1974 and 1989



28, 19, and 3 percent of primary, secondary, and higher education expenditures, respectively, were received by the poorest fifth of the population. In 1989, the figures were 36, 32, and 10 percent. The main reason for this improvement is the relative increase in the participation rates of the poor. During this period, primary education became virtually universal, whereas in the early 1970s, only 85 percent of poor children attended primary school. Even in 1974, expenditures on primary education were progressive, since poorer families were more likely to have larger families and hence, more school-age children. By 1989, they still had more children than richer families, but they also had all of their children in school. For secondary education, the story is similar. Expenditures were progressive both in 1974 and in 1989, largely due to the numbers of children in poor families (being equivalent essentially to a per capita subsidy). It is rare to find policies this equitable. In fact, participation rates increased continually over the period, the increases being much greater among low-income children (high-income children had been attending school all along).

For higher education, the trend is in the same direction, in that the share of expenditures going to the poorest 20 percent increased from

Figure 18-9. Distribution of Secondary Education Benefits, Malaysia, 1974 and 1989

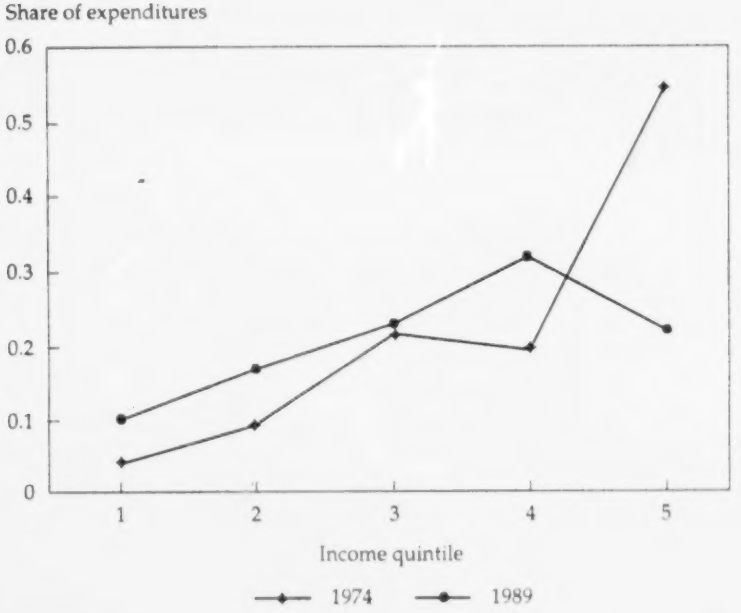


3 to 10 percent. There was something of an acceleration of the improvement judging by the progress made from 1974 to 1984 relative to that made from 1984 to 1989. This may be attributable to the residential secondary school program, which targeted lower-income, primarily rural children, for more intensive academic preparation. However, in both periods, these figures reflect substantial subsidies to the higher-income groups.

When the net effects of subsidies are calculated for the education system as a whole, the correlation with income is very weak (see figure 18-11). Even though primary and secondary expenditures are highly progressive, the size of the higher education budget and its regressivity make the net effect of educational expenditure very flat with respect to income.

It is possible to look more carefully into the pattern of service use, and thus the pattern of subsidization, by means of multivariate analysis that explains enrollment rates by income, region, race, and urban/rural location. The results in figure 18-12 and appendix 18-2 show the enrollment rate by income decile for primary, secondary, and higher

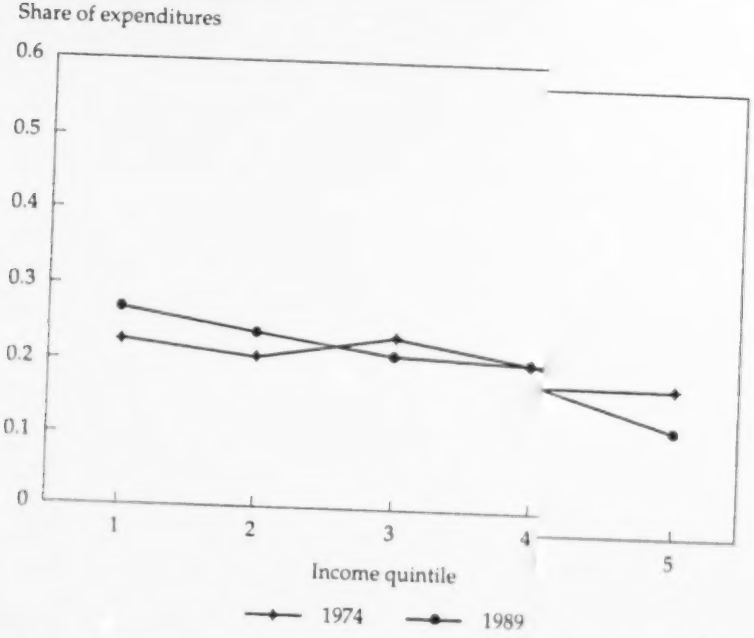
Figure 18-10. Distribution of Higher Education Benefits, Malaysia, 1974 and 1989



education in 1984, controlling for race, urban/rural location, and state. The results confirm that a majority of the subsidies for primary education accrue to the lower- and middle-income groups even when controlling for these other factors. That is, it is not simply that primary education benefits are targeted to poor areas but that poor people within each area receive a larger share of the benefits of educational services.

However, while the number of children enrolled per family in public secondary schools falls with increasing income, so that government subsidies to secondary education are distributed progressively (see figure 18-9), the regression results indicate that age-specific enrollment rates at the secondary level rise steadily with household income, holding all else constant (see figure 18-12). Secondary education subsidies are pro-poor, because poor households tend to have more secondary school-age children, not because poor children are more likely to be enrolled in public secondary schools. Controlling for the right-hand-side variables held at their sample means, there is little explanatory power in any variable other than income and race as far as secondary school enrollment is concerned. Furthermore, neither urban/rural sta-

*Figure 18-11. Distribution of All Education Benefits, M
1989*
Malaysia, 1974 and

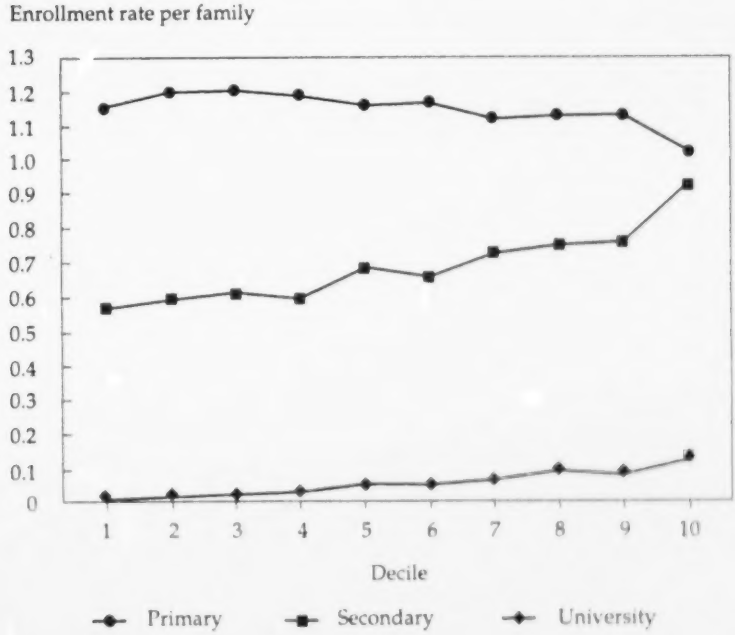


tus nor state variations have any explanatory pow
er with respect to
age-specific enrollment rates.

The success of the NEP policies is evident in the c
oefficients for race
and income. Calculations based on appendix 18-2
show that Malay
children attend school at significantly higher rates
than Indians and
other races, but that these higher rates are not due to
direct discrimina-
tion on the basis of race. Malay children attend abou
t 25 percent more
frequently; that is, around 78 percent of Malay chil
ldren are enrolled
in school as compared to 61 percent for other races
(Indonesians and
tribal people) and 64 percent for Indian children. Fo
Chinese children,
the figure is 69 percent (though it is not significa
tly different from
either Malay or other children in a statistical sens
se). However, the
pattern of coefficients on race directly is ambiguous as
to overall tenden-
cies to attend school. The differences in the average r
ates of attendance
are attributable to differences in location and inc
ome between the
groups rather than from the coefficient on race itself.

For university enrollment, a similar story holds. I
ncome levels and
race are the main determinants of university enro
llment. For given

Figure 18-12. Educational Enrollment, by Decile, Ranked from Poor to Rich, Malaysia, 1984

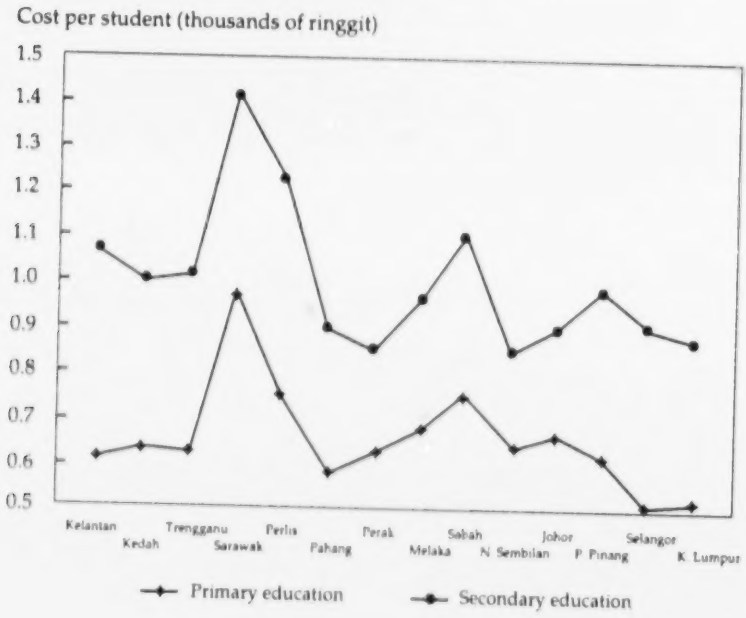


levels of income, Malay children are more likely to attend a university than either Chinese or Indian children. At the level of the second highest decile, for example, an urban Malay from Johor has a university enrollment rate of 12 percent. In contrast, a Chinese child with the same socioeconomic characteristics has only a 5 percent probability of enrolling in the university.

Examining the allocation of government expenditures on education by state is another means to evaluate the investment strategies followed by the Malaysian government. The overarching objective of the NEP was to redistribute income and human capital to the Malay population, who were disproportionately located in the poorer areas. This pattern in the distribution of government spending across states is visible in the per student allocations by state, shown in figure 18-13. With states arranged in order of mean income per capita, the per student allocation for primary and secondary education shows a general tendency for the government to spend more in the poorer states.

Over time, the progressive allocation of funds at the lower levels of the education system has helped to ensure that the poor have equal

Figure 18-13. Government Expenditures per Student, by State, Ranked from Poor to Rich, Malaysia



access to public services. The allocation at higher levels is not so guided, however. For higher education, the richest 40 percent of the population still captures more than 50 percent of all education expenditures. Given that the lower levels of schooling produce higher social returns, potential improvements can be made by reallocating government subsidies to the primary and secondary levels of education.

Income Transfers from Social Sector Expenditures

The analysis in the preceding sections demonstrated that, overall, the poorest households in Malaysia capture the largest share of the benefits of public expenditures on health and education services. Apart from strengthening the human capital of the poor, an important objective of Malaysia's development strategy was to improve the distribution of income. The overall distribution of private income did not change dramatically, however, as the income share of the lowest quintile remained unchanged at almost 5 percent of total income and the share of the richest 40 percent fell only slightly, from 77 to 74 percent. It appears that the rapid growth the country experienced over the period

of the NEP was fairly evenly distributed, as the average inc ome of the lowest quintile increased by 120 percent, while the income of quintile increased by just over 100 percent. Thus, while the the highest the NEP were relatively successful at getting public expendit policies of disadvantaged populations, they had only a minor impact o tures to the all distribution of income in Malaysia.[9] n the over-

The previous section demonstrated that the largest share c of the benefits from publicly financed programs in health and educatio uted to the poor, when analyzed in terms of the share of g n is distribexpenditure received per household. Although this type government provides an overall picture of the targeting characteristics of analysis ment policies, it is also interesting to examine governmen of governas a share of personal income.[10] nt spending

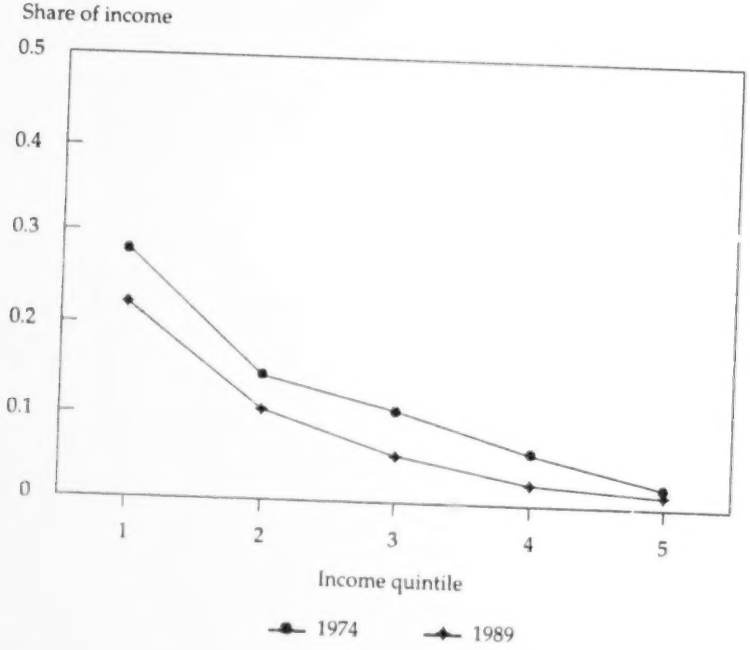
In 1974, the public subsidy for health and education rep resented 17 percent of household income (see Meerman 1979). Rapid ly growing personal incomes over the period of the NEP reduced the su bsidy to 13 percent of household income by 1984, but the benefits stil l accounted for nearly 45 percent of the lowest quintile's household income, a substantial transfer to the poor as a share of their household income. In figures 18-14 to 18-16, the progressive nature of public outlays to health and education is evident for all expenditures except higher education, where there is less variation in the distribution of the subsidy as a share of household income across all quintiles.

Comparing 1974 to 1989, we find that the subsidy for primary and secondary education decreased as a proportion of household income, reflecting faster growth of personal incomes than of the education budget. With the personal incomes of the poor increasing more rapidly than the incomes of the higher-income groups, the overall trend in public expenditure shows that public subsidies became a smaller part of the household budget. For higher education, the share of government subsidies in personal incomes increased over the period of the NEP, and this increase was greatest for the bottom 40 percent of the population (figure 18-15). It appears that higher education is highly income elastic, with rising private incomes increasing the demand for higher education, and this demand was successfully translated into public budgets.[11]

Over the period of the NEP, the demand for health care kept pace with the growing private incomes, and public expenditures increased to meet this demand. The progressive nature of government spending is again highlighted in figure 18-16, which shows that public expenditure for health care, as a share of household income, increased for the poorest quintile. As the rich opted out of the public system for private services, the poor continued to capture a larger share of the benefits as a fraction both of the government budget and of their own.

Overall, education and health expenditures helped to alleviate poverty and to improve the distribution of income. Although public outlays

Figure 18-14. Outlays for Primary and Secondary School as a Share of Household Income, Malaysia, 1974 and 1989

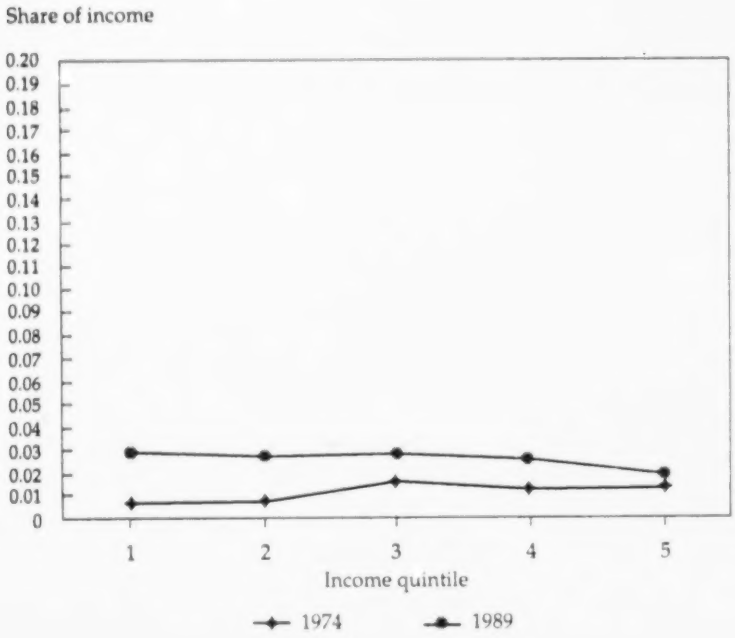


are generally progressively distributed, the higher-income classes receive a disproportionate share of the subsidy for higher education. Given rising costs, the continued provision of subsidies to the rich imposes a heavy burden on the budget and thus affects the efficiency objectives as well. To lower public costs (in terms of financial as well as labor resources), it is now essential to eliminate subsidies received by upper-income groups and to use facilities more efficiently. One way to lower costs and eliminate subsidies is to encourage the private sector to participate in the provision of higher education. By responding to market signals, the private sector will also help to meet the growing private sector demand for skilled labor.

Outcomes and Efficiency

Expenditures on health and education accomplish more than a mere transfer of income. They are productive investments in the human capital of the economy. As the previous sections have documented, the poor's access to services and, more important, health and education

Figure 18-15. Public Outlays for Higher Education as a Share of Household Income, Malaysia, 1974 and 1989

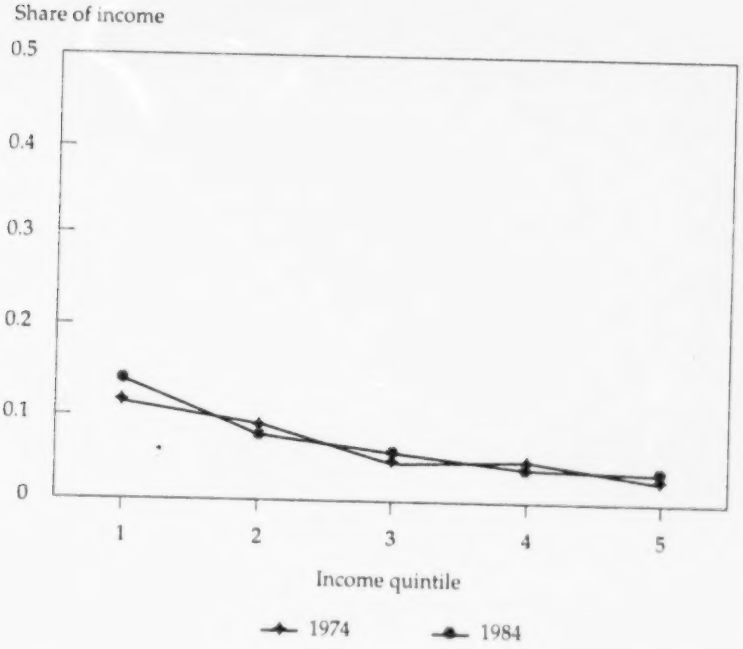


status dramatically improved over the past twenty years. A natural question to ask is, How much of this improvement is due to government policy, and how much merely reflects income growth over the period? Given the resource constraints that face policymakers in the social sectors, it is critical that government spending be allocated to programs that maximize the impact on health and educational status per dollar spent. Recent studies have shown that outcome measures can be evaluated as a function of government expenditure and specific government programs (Pitt, Rosenzweig, and Gibbons, chapter 6 of this volume; Hammer, Cercone, and Nabi 1994). In order to examine the relationship between public outlays to the social sectors and improvements in health and education outcome measures, this section examines trends in government expenditure in order to decompose the changes in outcome measures into their constituent parts.

Health

In order to sort out the relative effects of the determinants of health improvement, a simple regression is performed using a panel of state-

Figure 18-16. Public Outlays for Health Care as a Share of Household Income, Malaysia, 1974 and 1984



level data for the years 1986–89 (or, four observations on each of the fourteen states). The basic idea is to attribute the improvement in health indicators to three types of determinants: (1) income growth, (2) public provision of services that are either public goods or goods with strong external effects, and (3) public provision of medical services, which are basically private goods. The working hypothesis is that policy instruments that engender substitution away from the private sector will be less effective than those that address a serious market failure. The measures of health status are infant and maternal mortality rates, and the explanatory variables are (1) average state income; (2) for the provision of "public" goods, complete immunization against DPT; (3) the proportion of the population with safe water; and (4) for the public provision of private goods, the number of doctors per capita who are publicly assigned (an alternative regression is also included that uses the total number of physicians per capita for comparison). Given the panel structure of the data, estimation is done using ordinary least squares, a fixed effects (over states) model of the error term, and a

generalized least squares or random effects model. Details of the estimation procedure and construction of the income variable are presented in Hammer, Cercone, and Nabi (1994). The basic results are summarized below, while table 18-3 shows the full regression results.

1. Immunization rates particularly and water supply have the strongest and most robust effects on health status.
2. Although not a robust result, there is evidence that the greater the number of doctors per capita in a state, the better the health status. However, greater numbers of *publicly employed* doctors do not necessarily improve health status, and it is the publicly assigned doctor who is under the control of policymakers. The difference in the results can be interpreted to indicate that public and private medical services substitute for one another such that increases in publicly assigned doctors are partially offset by decreases in the number of doctors in private practice.
3. Income, per se, has little effect on health status. However, it is an important determinant of demand for private medical care that does affect status.

The first two results indicate the value of concentrating government resources on those activities in which the public sector has a distinct advantage in provision. If the safety of water is not guaranteed by the government, the population has few alternatives, as the private sector is unlikely to invest in such guarantees of water supply and in optional sanitation services. Even though our earlier analysis showed that the rates of safe water and immunization coverage appear relatively regressive, expansion on the margin may still be pro-poor, since any increase in coverage will be in poorer areas or at least will expand service to the poorest groups in the wealthier states. High-income groups already have safe water (through collective pressure on government) and typically ensure that their children are immunized; investments to expand coverage of these services will therefore be targeted to the poor. Further, since the poor suffer disproportionately more than the rich from infectious diseases, prevention of these diseases through population-based measures (rather than clinical services) will likely benefit the poor disproportionately as well.

Education

The allocation of resources by state to primary and secondary education is used as a redistributive device to the poorer areas (see figure 18-13). The impact of government spending, however, must be measured in terms other than program intensity or dollars spent per capita. To assess the impact of government spending effectively, it is important to use performance or outcome measures. In general, data on the perfor-

Table 18-3. Estimated Effect of Health Interventions on Infant and Maternal Mortality, Malaysia, 1986–89

	Dependent variable = infant mortality				*Dependent variable = infant mortality*			*Dependent variable = maternal mortality*		
Intervention	*OLS*[a]	*Random effects*	*Fixed effects*	*Fixed effects*[b]	*OLS*[a]	*Fixed* effects	*Random* effects	OLS[a]	*Fixed effects*	*Random effects*
Log income	−1.53	−1.03	−0.86	−1.06	−0.34	−0.622	0.45	−0.203	0.43	0.075
	(1.39)	(4.48)	(1.82)	(0.97)	(1.56)	(5.26)	(2.13)	(0.103)	(0.14)	(0.050)
Safe water	−0.12	−0.112	−0.127	−0.147	−0.107	−0.102	−0.116	−0.0018	−0.000	−0.003
	(0.38)	(0.07)	(0.05)	(0.05)	(0.038)	(0.072)	(0.05)	(0.0025)	(0.003)	(0.002)
DPT3	−0.128	−0.062	−0.071	−0.113	−0.133	−0.063	−0.075	−0.0047	−0.0055	−0.0042
	(0.024)	(0.026)	(0.018)	(0.04)	(0.024)	(0.03)	(0.02)	(0.0017)	(0.0018)	(0.0024)
Population per doctor	n.a.	n.a.	n.a.	n.a.	2.07	2.52	2.07	n.a.	n.a.	n.a.
					(0.872)	(4.44)	(1.35)			
Population per public doctors	1.14	0.293	1.00	1.03	n.a.	n.a.	n.a.	−0.019	−0.071	0.032
	(0.53)	(2.40)	(0.82)	(0.79)				(0.045)	(0.072)	(0.057)
Adjusted R^2	0.63	0.88	0.60	0.55	0.65	0.88	0.62	0.33	0.47	0.34

n.a. Not applicable.

Note: Standard errors are in parenthesis. $N = 56$.

a. Ordinary least squares regression.

b. Regression with instrumental variables.

mance of the facilities receiving public money are difficult to obtain. A common alternative is to use outcome indicators such as transition or repetition rates. These indicators are preferable to enrollment rates, because they reflect successful completion of the relevant level conditional on the number of students having entered the level. Enrollment rates both confound demographic changes over the period as well as count repeating students as a credit rather than as a problem. In this section, we use statewide, time-series data on the transition rates from primary to secondary school and from lower to upper secondary school for the years 1985 to 1990 to measure the impact of government spending per student on educational progress. In one regression, the dependent variable measures the proportion of students in the last year of primary education who continue on to the lowest grade of secondary school; in the other regression, it represents the proportion of students in the last year of lower secondary education who continue on to the lowest grade of upper secondary school. These levels are chosen simply for reasons of data availability. While participation rates for primary school show little variation across states now that primary education is virtually universal, substantial differences remain among states in terms of the probability of continuing on to secondary school.

The regression also includes the percentage of state income accounted for by agricultural production as a proxy for the opportunity cost of children's time and, to the extent of capturing expected occupational choice, the expected value of education as well. The results are presented in table 18-4.

The results reveal that public expenditure on primary education is a significant factor in stimulating higher transition rates, though it is not as important as income. The higher resources per state in the poorer areas genuinely compensate for the direct effect of lower incomes, thereby making the total effect of income nil. This is more evidence of the progressive nature of public spending on primary education.

Secondary education is harder to characterize this way and appears to require more complicated explanations than these data can support. The transition from lower to upper secondary school appears to be negatively related to the transition from primary to secondary school. Perhaps some of the less well qualified students from the high-transition states fail to make the next level. Thus, variables in one equation tend to take on the opposite sign in the other. Furthermore, variation in the individual demand for education appears to be more important at secondary school levels than at the primary level. For example, in more heavily agricultural states, the transition rates in secondary school are significantly lower than in nonagricultural states. This dependence on production structure does not appear at the primary school level. Both on equity grounds and in terms of educational performance, expenditure at the primary school level appears well justified.

Table 18-4. Regression Results for Education Transition Data, Malaysia, 1985–90
(dependent variable = transition rate)

Dependent variable	*Constant*	*Log income*	*Log expenditures per student*	*Average share of state income*	*Adjusted R^2*
Primary to low secondary	−155	16.66	15.92	0.03	0.572
		(5.11)	(7.66)	(0.12)	
Low secondary to upper secondary	181	−5.94	−9.68	−0.153	0.625
		(2.22)	(3.09)	(0.054)	

Note: Standard errors are in parentheses. $N = 14$.

Conclusions

The improvement of health status and the expansion of basic education are two of the most outstanding achievements of Malaysia's economic policy over the past fifteen years. In order to eliminate the vast differentials that existed between rich and poor, Malay and non-Malay, government spending in the social sectors was allocated to preferential programs in education and to the targeted expansion of access to the health care system. This chapter has examined the changes that occurred in the distributional impact of these public outlays between 1974 and 1989, using household-level data on the use of public services. In addition, state-level data were analyzed to provide further insights on the targeting and effectiveness of public spending on health and education in the 1980s.

There are a few areas of crosscutting interest, common problems, and noticeable contrasts between the health and education sectors in Malaysia. In both of the sectors, the targeting performance of government expenditures improved over the period of the NEP. Except for higher education, social service expenditures were progressive and became more so after 1974, as the poor captured the largest share of the benefits of social expenditures. Interestingly, the reasons for this common improvement are essentially opposite to one another. For education, primary-level enrollment is now virtually universal, and enrollment rates are higher due to the increased participation of the Malays. Expansion of the education system came as a result of an ethnically based targeting policy that reached lower and lower income groups. In contrast, the improved targeting of health care came predominantly as a result of the richer income groups opting out of the public system to use private practitioners. And while this raises questions of the efficiency of the sector as a whole, on equity grounds this improved the ability of the public health system to further the public interest.

The two opposing reasons for improved targeting have quite different implications for potential problems and policy issues in the two sectors. In health, there is clearly an unfinished agenda in the provision of public goods, or goods with substantial externalities; at the same time, a large, basically unregulated, private sector has emerged. On the one hand, a rapidly growing private sector could be a welcome change, as more of the publicly provided services can be concentrated on the poor if the rich opt for private care. On the other hand, this growth has taken place with little or no regulation of fees, modes of payment, or financing arrangements by the Ministry of Health. Left unregulated, the impact on health status of the private sector is ambiguous; an exodus of higher-income people to seek care in the private sector may exacerbate problems in the private markets for health care and lead to serious efficiency problems in the market.

The challenge facing government in the coming years is to maintain a clear definition of its responsibility for promoting efficient and equitable resource allocation in the health sector. This entails promoting two very different activities: first, maintaining and extending the provision of basic public health services such as safe water, sanitation, and immunization; and second, shifting focus from being the sole, or even principal, provider of health services to being a regulator of both the public and private health systems to mitigate market failures and to ensure the efficient and equitable functioning of the sector.

In education, the problem lies in the opposite direction. As a result of the policies of the NEP, Malaysia has more than completely covered its obligations to provide services with substantial external effects (primary education) and has even proceeded to provide essentially private goods (higher education) in order to restore ethnic balance. While the provision of primary and secondary schooling is pro-poor, the higher education system is regressively subsidized, and a false equilibrium is maintained through a public monopoly on the granting of higher degrees. As a result, the net distributional effect of overall education spending is flat with respect to income, and higher education enrollment rates in Malaysia are lower in comparison with other countries with similar levels of income and growth prospects (Tan and Mingat 1991). This presents something of a policy dilemma. On the one hand, the demand for highly educated people is likely to grow substantially, and Malaysia's current attainments are already lagging behind those of its competitors. On the other hand, the costs of providing education services, for higher education particularly, are relatively high, and the subsidy for higher education goes disproportionately to the rich. Although there is no clear-cut solution, policy options should focus on the public interest and on remedying market failures.

A defensible policy response to these problems is quite similar across the two sectors, though each originates from a different place. In each case, the relevant ministry might consider a shift in emphasis from the direct provision of certain services (beyond those with compelling public interest reasons for intervention) to regulation of the private sector. In health, this would entail the establishment of a regulatory structure in the public sector with authority over the private medical market. In education, this would entail allowing private institutions to develop for the provision of higher education and ensuring that the credit market is functioning so that loans can be extended to university students. A second response might be to change the pricing policy for public services. Tax and pricing policies that aim to recover costs, in both the health and education sectors, may present an opportunity to mobilize resources that can be used to expand basic services, to improve quality, and to improve the overall efficiency of the social sectors.

This chapter has shown that government policies in Malaysia that sought to target the economically disadvantaged groups of the popula-

tion with public sector spending have been successful. Public policies have eroded the vast differentials in health status and educational attainment that existed at the beginning of the NEP in 1970, and through generous government subsidies, have transferred crucial resources to the poorest households. This analysis of the redistributive effect of these policies between 1974 and 1989 suggests that social sector expenditures have served Malaysia well since independence.

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Appendix 18-1. Regression Results for Use of Medical Care, Malaysia, 1984

Variable	*Public outpatient*		*Private outpatient*		*Public inpatient*		*Private inpatient*	
Intercept	1.06	(7.05)	2.53	(15.05)	0.40	(2.06)	0.09	(1.8)
Region								
Rural (relative to urban)	0.19	(3.37)	−0.30	(−4.66)	0.06	(0.80)	−0.02	(−1.22)
State								
Kedah	0.39	(3.56)	0.24	(1.96)	0.15	(1.04)	−0.01	(−0.22)
Kelantan	0.02	(0.15)	−0.45	(−3.53)	−0.29	(−1.95)	−0.02	(−0.52)
Kuala Lumpur	−0.30	(−3.18)	−0.34	(−3.27)	−0.25	(−2.07)	−0.01	(−0.28)
Malacca	1.32	(8.91)	0.71	(4.25)	1.22	(6.39)	0.06	(1.33)
Negri Sembilan	0.46	(3.67)	0.25	(1.78)	0.04	(0.22)	−0.05	(−1.22)
Pahang	0.81	(7.27)	−0.17	(−1.36)	−0.04	(−0.27)	−0.03	(−0.72)
Penang	0.19	(1.82)	−0.58	(−4.94)	0.21	(1.51)	0.07	(2.19)
Perak	0.54	(5.98)	0.56	(5.61)	0.43	(3.77)	0.08	(3.04)
Perlis	0.81	(3.57)	0.06	(0.25)	−0.13	(−0.46)	−0.03	(−0.37)
Selangor	0.01	(0.11)	0.82	(8.01)	−0.13	(−1.08)	0.05	(1.82)
Trengganu	0.73	(5.75)	−0.26	(−1.86)	0.05	(0.32)	0.03	(0.73)
Race								
Chinese	−0.78	(−5.78)	0.95	(6.27)	−0.25	(−1.4)	0.13	(3.03)
Indian	0.65	(4.35)	1.23	(7.37)	1.36	(7.07)	0.15	(3.30)
Malay	−0.01	(−0.07)	0.34	(2.34)	0.05	(0.3)	0.02	(0.47)
Decile (relative to top decile)								
1	1.60	(14.01)	−1.68	(−13.14)	1.07	(7.29)	−0.10	(−2.76)
2	1.65	(14.92)	−1.19	(−9.57)	0.98	(6.80)	−0.07	(−2.05)
3	1.55	(14.26)	−0.81	(−6.61)	0.67	(4.79)	−0.13	(−3.74)
4	1.32	(12.32)	−0.51	(−4.25)	0.81	(5.82)	−0.04	(−1.23)
5	1.26	(11.89)	−0.30	(−2.55)	0.63	(4.59)	−0.09	(−2.80)
6	1.16	(10.87)	0.02	(0.14)	0.56	(4.10)	−0.07	(−2.18)
7	0.85	(8.00)	0.08	(0.66)	0.45	(3.3)	−0.03	(−1.06)
8	0.52	(4.96)	0.10	(0.81)	0.50	(3.64)	−0.001	(−0.02)
9	0.25	(2.33)	0.07	(0.62)	0.41	(3.01)	0.05	(1.49)

Note: *t*-ratios are presented in parentheses. $N = 40{,}744$. Dependent variable is the number of visits per family per year to each of the listed providers.

Appendix 18-2. Regression Results for Enrollments, by Education Level, Malaysia, 1984

Variable	*Primary*		*Secondary*		*University*		*Vocational*	
Intercept	0.90	(12.97)	0.94	(9.56)	0.16	(3.94)	0.09	(1.8)
Region								
Rural (relative to urban)	−0.02	(−1.04)	−0.03	(1.60)	−0.01	(−1.34)	−0.02	(−1.0)
State								
Kedah	−0.03	(−0.92)	0.01	(0.09)	−0.01	(−0.26)	−0.01	(−0.2)
Kelantan	0.01	(0.10)	0.04	(1.08)	−0.03	(−1.54)	−0.02	(−0.5)
Kuala Lumpur	−0.02	(−0.73)	0.02	(0.55)	0.01	(0.13)	−0.01	(−0.2)
Malacca	0.05	(1.13)	−0.04	(−0.69)	0.01	(0.08)	0.06	(1.3)
Negri Sembilan	−0.04	(−0.91)	0.02	(0.36)	0.03	(1.30)	−0.05	(−1.0)
Pahang	−0.04	(−1.17)	−0.08	(−1.96)	−0.02	(−1.26)	−0.03	(−0.7)
Penang	−0.01	(−0.28)	−0.05	(−1.02)	−0.02	(−0.83)	0.07	(2.1)
Perak	−0.01	(−0.24)	−0.01	(−0.09)	0.03	(1.95)	0.08	(3.0)
Perlis	0.03	(0.41)	0.03	(0.31)	0.04	(0.82)	−0.03	(−0.3)
Selangor	−0.01	(−0.47)	−0.02	(−0.66)	0.02	(1.35)	0.05	(1.8)
Trengganu	0.00	(0.07)	−0.03	(−0.81)	0.04	(2.21)	0.03	(0.73)
Race								
Chinese	0.21	(4.50)	0.09	(1.44)	−0.07	(−2.71)	0.13	(3.0)
Indian	0.07	(1.32)	0.02	(0.25)	−0.08	(−2.78)	0.15	(3.3)
Malay	0.07	(1.62)	0.17	(3.12)	0.00	(0.06)	0.02	(0.47)
Decile (relative to top decile)								
1	0.15	(2.57)	−0.35	(−4.82)	−0.11	(−3.44)	−0.10	(−2.0)
2	0.18	(3.26)	−0.33	(−4.65)	−0.10	(−3.02)	−0.07	(−2.0)
3	0.19	(3.34)	−0.31	(−4.35)	−0.09	(−2.63)	−0.13	(−3.0)
4	0.17	(3.10)	−0.33	(−4.69)	−0.09	(−2.65)	−0.04	(−1.0)
5	0.14	(2.53)	−0.24	(−3.40)	−0.06	(−1.76)	−0.09	(−2.0)
6	0.15	(2.66)	−0.27	(−3.83)	−0.06	(−1.87)	−0.07	(−2.0)
7	0.10	(1.67)	−0.20	(−2.7)	−0.05	(−1.48)	−0.03	(−1.0)
8	0.11	(1.76)	−0.18	(−2.27)	−0.03	(−0.78)	−0.001	(−0.0)
9	0.11	(1.54)	−0.17	(−1.88)	−0.04	(−0.90)	0.05	(1.49)

Note: *t*-ratios are presented in parentheses. $N = 2,198$. Dependent variable is the number of children enrolled at each level.

Notes

1. Although the Chinese and Indian immigrants are now Malaysian nationals, and should therefore be called Chinese Malaysian or Indian Malaysian, for the sake of clarity, we refer to the three ethnic groups as Malay, Chinese, Indian, and other, which includes all other races.

2. Although it is generally acknowledged that household expenditures provide a better indication of living standards than household income, in order to ensure consistency with the methodology used in Meerman (1979) and due to data limitations in the 1984 and 1989 data sets, this study uses per capita income of the household at survey time and use of publicly provided health and education services as its measures of the economic state of a household.

3. It is not possible to disaggregate health expenditures for statewide data to the level of specific interventions available from the survey data. Thus any systematic bias in the cost of services within the aggregate of inpatient and outpatient services is present in the results.

4. The basic formula for generating a stock of physical capital and a capital stock is $K_t = \sum_{T}^{t} \delta^{t} I_{t-1} + \delta^{t} K_T$. Where I_t is capital expenditure in period t, T is the earliest year of the capital series, K_T is the (assumed) level of capital stock in that year, and δ is 1 minus the depreciation rate of capital. Capital services are equal to rK_t, where r is the user cost of capital. This procedure essentially gives a means of smoothing development expenditures in order to avoid attributing unrealistic fluctuations by year to users.

5. The inpatient variable refers to inpatient days at public health facilities, including national government hospitals, general hospitals (state level), and district hospitals. Public outpatient visits consist of consultations at any of the aforementioned public hospitals plus visits to public health centers, government rural clinics, traveling dispensaries, and native/traditional treatments.

6. The fees paid per household for education represent household expenses incurred for room and board in addition to transport, supplies, uniforms, and tuition fees. For health, the fees represent the amount paid at public clinics per inpatient or outpatient consultation.

7. There is always the possibility that the results are due, partly, to differences in sample size. The 1974 study was quite a bit smaller than the more recent surveys, and the more jagged pattern may reflect more variability from the small sample.

8. The states are ranked according to the GDP per capita *net* of income from mining and quarrying. In order to represent household income per capita more accurately, we subtract the share of GDP originating from these industries from the state total, because many of the profits from these industries are highly concentrated and often accrue to residents of other states (particularly the metropolitan areas) or, in some cases, to foreign investors.

9. It is also noteworthy that the educational burden on household income of out-of-pocket costs declined for the poorest 20 percent over the period of the NEP. The distribution was even more equitable in 1989 than it was in 1974, as the educational burden as a share of income had nearly doubled for the richest 20 percent of the population.

Quinti		
1	*ile*	*1974*	*1989*
2		0.14	0.10
3		0.08	0.07
4		0.07	0.05
5		0.05	0.03
		0.02	0.04

10. The comparisons
for education; howeves made in this section are based on 1974 and 1989 data for health. As a result,er, data limitations preclude the use of the year 1989 1984 data. , the distributional results for health are derived from

11. Although it is cle
more rapidly than persear that public expenditures for higher education grew expenditures are not rsonal incomes over the past twenty years, higher public service output. That isnecessarily indicative of increasing demand for public increasing (real) pricesis, higher expenditures may simply reflect constantly argued that public servs for higher education. Baumol and Oates (1975) have time, at least not relativices do not experience much productivity growth over of public services will rtive to the private sector. As a result, the relative costs private and public secise geometrically at a rate equal to the difference between only 14 percent of thector productivity growth. According to their analysis, States can be attributee increase in public expenditure growth in the United remaining 86 percent fed to an increase in public sector outputs, while the finances relative price increases for public services.

References

Baumol, William J., ar
Policy. Englewood Cnd Wallace E. Oates. 1975. *The Theory of Environmental*
De Tray, Dennis. 198Cliffs, N.J.: Prentice-Hall.
Distribution of Scho8. "Government Policy, Household Behavior, and the
Economics 6: 303–36oling: A Case Study of Malaysia." *Research in Population*
Government of Mala.
Lumpur. aysia. 1970. "Second Malaysia Plan, 1971–75." Kuala
———. 1984. "Malay
———. 1989. "Malay'sia Household Income Survey." Kuala Lumpur.
Hammer, Jeffrey, Jame'sia Household Income Survey." Kuala Lumpur.
and Educational Staes Cercone, and Ijaz Nabi. 1994. "Determinants of Health
World Bank, Policyatus in Malaysia: Public Goods and Private Substitutes."
Meerman, Jacob. 1979 Research Department, Washington, D.C.
New York: Oxford '9. *Public Expenditure in Malaysia: Who Benefits and Why*.
Tan, Jee-Peng, and Al University Press.
Comparative Study lain Mingat. 1991. "Educational Development in Asia: A
Series, Internal Disy Focusing on Cost and Financing Issues." Asia Regional
scussion Paper 151. World Bank, Washington, D.C.